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10/077,639	02/15/2002	Hidekazu Shirakawa	NEC 01FN073	5470

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EXAMINER

PATEL, GAUTAM

ART UNIT PAPER NUMBER

2627

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,639

Applicant(s)

SHIRAKAWA ET AL.

Examiner

Gautam R. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-15 is/are pending in the application.
4a) Of the above claim(s) 5-9 is/are withdrawn from consideration.
5) ☐ Claim(s) 14 and 15 is/are allowed.
6) ☒ Claim(s) 1,2,10 and 11 is/are rejected.
7) ☒ Claim(s) 12 and 13 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-2, 10-15 are pending for the examination. Claims 5-9 were withdrawn as non-elected. Action on claims 1-2 and 10-15 follows. Claims 14-15 are newly added for examination

NOTE: **Applicants are urged to cancel non-elected claims 5-9.** Not canceling of non-elected claims may slow down the prosecution if and when the application is allowed.

RCE STATUS

2. The request filed on 6/5/06 for Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application is acceptable and a RCE has been established. An action on the RCE follows.

Claim Objections

3. Claim 1-2, 10-15 are objected for following reasons.

The specification does not talk about “a transparent layer” at all]. the specification in paragraph 9-10 disclose that light is reflected from recording layer; and a thickness error detector detects thickness error of said transparent substrate. It seems the Applicants are now trying to claim that this transparent substrate is same as any transparent layer, however there is no support of this fact in the specification at all. this gives appearance that the Applicants are trying to broaden the scope of the claim without any support at all from the specification. Applicants are urged to put proper original language back in the claims.

Corrections are required.

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 10-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kikuchi as applied to claims 1-2 above in view of Tateishi et al., US. patent 6,584,048 (hereafter Tateishi).

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As to claim 1, Kikuchi discloses the invention as claimed [see Figs. 1 and 4-5] including an objective lens, a signal detector and a thickness error detector, comprising:

an objective lens [fig. 1, unit 14] for condensing light for recording or reproducing information on said recording layer [fig. 1, unit 15] via a transparent substrate [fig. 1, unit 15's transmission substrate] of the optical disk [col. 2, line 61 to col. 3, line 13; col. 5, lines 14-48];

a signal detector [fig. 4, units 31-34 & FE1 & FE2] for detecting focus error signals and focus sum signals from return light reflecting from said recording layer [col. 2, line 61 to col. 3, line 13; col. 5, lines 14-48]; and

a thickness error detector [fig. 4, units 33, 36, 38-39] for detecting thickness errors [Thickness error signal TH] of said transparent substrate with reference to a specified value, based on the characteristics of said focus error signals [col. 2, line 61 to col. 3, line 13; col. 4 lines 3-45].

As to claim 1, Kikuchi discloses all of the above elements, including aberration correction caused by the thickness variations of the transmission [transparent] substrate and detection of focus error signal and focus sum signals.

Furukawa does not specifically disclose that these are detected by the well known knife-edge method [or by difference between positive peak and negative peak] to the extent claimed.

However, knife-edge method, or calculating difference between absolute value of positive peak and negative peak, has been well known in the art for a very long time and is not patentable idea as such [see US patent 5,136,566; col. 4, lines 1-11. Also see US 4,974,220; col. 4, lines 10-42 and fig. 3].

Also Tateishi clearly discloses:

Focus error based on difference between the absolute value of positive peak and the absolute value negative peak of said focus error signal [col. 10, lines 40-61, col. 11, lines 17-45; col. 12 lines 9-45 and fig. 5].

Both Kikuchi and Tateishi are interested in improving the focus error detection mechanism in an optical disk device.

One of ordinary skill in the art at the time of invention would have realized that the system of Kikuchi would be sensitive vibration of the disc surface and any extraneous noise would have compromised the quality of the electrical signals.

Therefore, it would have been obvious to have used a knife-edge method in the system of Kikuchi as taught by Tateishi because one would be motivated to reduce noise in the system of Kikuchi and provide better signal controls and improve quality of the signal and provide over all better control of the system [col. 2, lines 14-21; Tateishi].

5. The aforementioned claim 2, recites the following elements, inter alia, disclosed in Furukawa:

an objective lens [fig. 1, unit 14] for condensing light for recording or reproducing information on said recording layer [fig. 1, unit 15] via a transparent substrate [fig. 1, unit 15's transmission substrate] of the optical disk [col. 2, line 61 to col. 3, line 13; col. 5, lines 14-48];

a signal detector [fig. 4, units 31-34 & FE1 & FE2] for detecting focus error signals and focus sum signals from return light reflecting from said recording layer [col. 2, line 61 to col. 3, line 13; col. 5, lines 14-48]; and

a thickness error detector [fig. 4, units 33, 36, 38-39] for detecting a thickness error [Thickness error signal TH] of said transparent layer with reference to a specified value or its sign, based on the characteristics of said focus sum signal [col. 2, line 61 to col. 3, line 13; col. 4 lines 3-45].

6. As to claim 2, it is rejected for the similar reasons set forth in the rejection of claim 1, supra. As to the added limitations of a focus error signal and a sum signal; it should be pointed out that error signal is inherently is a sum signal also Kikuchi clearly discloses this in fig. 7, unit 42. see col. 5, lines 49-65 and equation (4).

7. The aforementioned claim 10, recites the following elements, inter alia, disclosed in Kikuchi:

a spherical aberration compensator [fig. 1, unit 13] for compensating for spherical aberration caused by the thickness error of said transparent layer [col. 5, lines 41-48].

8. As to claim 11, it is rejected for the same reasons set forth in the rejection of claim 10, supra.

9. Applicant's arguments filed on 6/5/06 have been fully considered but they are not deemed to be persuasive for the following reasons.

In the REMARKS, the Applicant argues as follows:

A) That: "a thickness error detector for detecting a thickness error of said transparent layer with reference to a specified value or its sign, based on a difference between the absolute value of the positive peak said focus error signal". [page 8, paragraph 4; REMARKS].

FIRST: NO transparent layer has been described or shown in figures at all. The specification only refers to a transparent substrate.

SECOND: More importantly, combination of Kikuchi and Tateishi clearly discloses ALL of the elements of invention exactly as described.

THIRD: It is also shown in new grounds of rejection above that Tateishi may not be even needed to show very well known knife-edge method and details of peak detections etc., of error detection as is shown by references presented above and repeated here [see US patent 5,136,566; col. 4, lines 1-11. Also see US 4,974,220; col. 4, lines 10-42 and fig. 3].

B) That: "claim2, as amended, requires "a thickness error detector detecting a thickness error of said transparent layer [?] with reference to a specified value or its sign, based on a difference between the focus position of the peak point of said sum signal and focus position of the zero point of said focus error signal" [page 8, paragraph 5; REMARKS].

FIRST: The Applicants are merely arguing how a focus error apparatus works.

SECOND: Combination of Kikuchi and Tateishi clearly discloses all these elements as described above in new rejection [See fig. 7, unit 42. see col. 5, lines 49-65 and equation (4); Kikuchi].

Allowable Subject Matter

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10. Claims 12-13 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 14-15 are allowed over the prior art of record.

NOTE: Claims 12-13 & 14-15 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose an optical disk device which includes a controller for calculating a compensating factor for the spherical aberration “at each radial position of the disk based on the thickness errors of the transparent substrate detected at various radial positions on the optical disk prior to recording or reproducing information, and causing the spherical aberration compensator to compensate based on the compensation factors during recording or reproducing”.

It is noted that the closest prior art, Kikuchi shows a similar apparatus, which has a controller for calculating compensation for spherical aberration. However Kikuchi fails to disclose a compensating factor for the spherical aberration at each radial position of the disk based on the thickness errors of the transparent substrate detected at various radial positions on the optical disk prior to recording or reproducing information, **and** causing the spherical aberration compensator to compensate based on the compensation amount during recording or reproducing

Other prior art cited

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Abe et al. (US. Patent 6246646).
- b) Nakano et al. (US. patent 6031792).
- c) Iwazaki (US. patent 5136566)
- d) Iida (US. patent 5414682)

Contact information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is 571-272-7625. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Dwayne Bost, who can be reached on (571) 272-7023.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Electronic Business Center whose telephone number is 866-217-9197 or the USPTO contact Center telephone number is (800) PTO-9199.



Gautam R. Patel
Primary Examiner
Group Art Unit 2627

July 1, 2006